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ABSTRACT

Because of the rate of change today due to the explosion of knowledge, all formal schooling in America, without exception, is more damaging to children than beneficial. What is needed is a program which uses the natural curiosity, intelligence, energy, and idealism of students in a context which permits both them and their community to change. The community itself should become a laboratory for the inquiries of students, and the school should be equipped with 20th and 21st century media to allow the students to study "Media Ecology", or how media of communication affect human perception. (SP)

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Curriculum Change and Technology

by Neil Postman*

As I see it, the major educational problem of the nuclear space age is that almost all formal schooling in America (for black and white, rural and urban, rich and poor) is more damaging to children than beneficial, and, in fact, reduces rather than increases their chances of future survival. The magnitude of this problem has been documented in recent years by Paul Goodman, Jerome Bruner, Nat Hentoff, Edgar Friedenberg, John Holt, Jules Henry, Marshal McLuhan, and George Leonard; before them, by Jean Piaget, Carl Rogers, Earl Kelley, Norbert Wiener, Ashley Montague, Aldous Huxley, and A.S. Neill; and before them, by W.H. Kilpatrick, Maria Montessori, John Dewey, A.N. Whitehead, et.al. In other words, the problem is not entirely new, but it grows more serious every day especially since so many people seem unaware of it (that is, act as if it doesn't exist).

The fundamental nature of the problem can be expressed in one word -- change. All other "revolutions" we are undergoing are subordinate to the "change revolution". In order to sense the dimensions of this revolution, consider the situation of communications technology in the following way: Imagine a clock face with 60 minutes on it. Let the clock stand for the time men have had access to writing systems. The clock would thus represent something like 3,000 years, and each minute on the clock, fifty years. On this scale, there were no significant communication or technological changes until about nine minutes ago. At that time, the printing press came into use in Western culture. About three minutes ago, the telegraph, photograph, and locomotive arrived. Two minutes ago: the telephone, rotary press, motion pictures, automobile, airplane, and radio. One

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minute ago, the talking picture. Television has appeared in the last ten seconds, the computer in the last five, and communication satellites in the last second. The laser beam appeared only a fraction of a second ago.

It would be possible to place almost any area of life on our clock face and get roughly the same measurements. For example, in medicine, you would have almost no significant changes until about one minute ago. Until a minute ago, as Jerome Frank has said, almost the whole history of medicine is the history of the placebo effect. Within the last thirty seconds, there have been more changes in medicine than is represented by all the rest of the time on our clock. This is what some people call the "knowledge explosion." It is happening in every field, and it's not going to stop.

The standard reply to comments about change is that change isn't new and that it is easy to exaggerate its meaning. To such replies, Norbert Wiener had a useful answer: the difference between a fatal and therapeutic dose of strychnine is "only a matter of degree." In other words, change isn't new; what is new is the <u>degree of change</u>. As the clock metaphor is intended to suggest, about 3 minutes ago, there developed a qualitative difference in the character of change. CHANGE CHANGED. The human situation is thus totally different from anything we have known before.

In the face of this situation, our schools have been almost totally paralyzed. A phrase sometimes used to describe paralysis

induced by too much and too rapid change is "future shock," and our schools have got it bad. Among other fixations that prevent our schools from dealing with the change revolution is a venerable assumption that a major function of the school is to transmit knowledge. This assumption is now not only irrelevant but actually harmful, and has been for at least 25 years. If you are over 20 years of age, the mathematics you were taught in school is "old"; the grammar you were taught is obsolete and in disrepute; the biology, completely out of date; the physics, a joke; and the history, open to serious question. The best that can be said of you, assuming that you remember what you were told and that you still rely upon it, is that you are a walking encyclopedia of out-dated information. Moreover, this is exactly what will become of the children who are presently in school. Most of the information now being transmitted to them will be out of date within ten years. The rate of information change is actually accelerating, and the process will not stop. We may have to face a situation soon whereby information change will occur so rapidly that knowledge transmitted before the Christmas holidays will be obsolete by summer vacation.

If you think I am exaggerating the problem, consider the case of what are called "subjects" in school. In elementary and secondary schools, even colleges, the subjects that are taught are roughly the same as those that were taught 50 years ago. And yet today (1969), there are at an absolute minimum 100 subjects that did not exist (at least in a developed form) 50 years ago, and which are arbitrarily excluded from school curricula. Why, for instance, is history taught?

Why not archaeology, linguistic philosophy, psychology, anthropology? Why is geography taught? Why not demography, comparative linguistics, sociology, cybernetics, exo-biology? Why is English taught? Why not natural ecology, comparative symbology, futurology, semantics, cinematography, comparative theology, symbolic logic?

Even if the schools began to add such subjects and subtract others, the problem would not go away. The proliferation of new subjects and the rot of old ones is so persistent that a curriculum will always be out of date as long as the schools take as a major objective the transmission of a specific body of knowledge. Such an objective, however useful it may have been in the past, is now a formidable obstacle to any intelligent confrontation with the future. It creates the illusion of knowledge stability. It fixes people to ideas, constructs, and information whose life expectancy is far shorter than people's. This is extremely dangerous. "What you don't know can kill you," is an important slogan, but even more important is Josh Billings' line that the world is plagued not so much by what we don't know but what we know that ain't so.

Not only is the information which comprises a subject changing at an unprecedented rate, but the concept of a "subject" itself is shifting. A major characteristic of the knowledge explosion is the interconnectedness of knowledge. Biology and chemistry become bio-chemistry, which is joined to mathematics to become mathematical-bio-chemistry. Sociology and psychology make Social Psychology. Psychology, Linguistics, and Cybernetics make Psycho-cybernetic-

linguistics. And so on. Knowledge is fluid and integrated but a "curriculum" is a rigid and segregated metaphor. Knowledge is changing and tentative but subjects are fixed and absolute. The schools are stuck on the horns of their own decrepid assumptions: their idea of what to do with a subject is old, and their idea of what to do with a student is old. Which leads to another set of assumptions presently preventing the schools from making a useful contribution to the well-being of their students: The schools have been and are presently committed to teaching certain skills - mostly the 3 R's. But changes in communications media, industrial technology, and in the structure of our political, social, and economic lives require new skills, new competencies, new patterns of behavior, none of which the schools, at present, have much interest in. For example, reading and writing are still important skills, but not any more important than the listening, seeing, photographing, editing, speaking, recording skills demanded by television film, radio, tape recorders LP records, etc. At present, the schools approach the teaching of communication skills as if the electric plug did not exist. The fetish about teaching children to read (e.g., The New York Times actually prints the reading scores of children throughout the city) is an excellent illustration of what is meant by future shock. Just at that point in communications history when reading has less importance than it has had for five hundred years, the schools have organized themselves for a full-scale attack on reading disabilities. In other words, the schools are just about 100 years late, and give no indication that they are even aware of it.

There is comparable future shock in the school's approach to intellectual competencies. At present, the only intellectual skill the schools genuinely value is memorizing and the student behavior most demanded is answer-giving. This, just at that point in technological history when electronic information storage and retrieval systems render human recollection behavior extraneous. Socrates feared that the written word would diminish the need to memorize. He was right. The computer diminishes the need further by a logarithm of about 10. The future does not require people who do badly what machines do well. And yet the typical classroom in America (in suburbia as well as the ghettos) is organized so that children will learn to playback a low definition version of what someone tells them. If you can remember 65% of what you were told, you pass. An exaggeration? Is there anyone reading this who knows of a school anywhere that provides sustained and systematic instruction in question-asking? I seriously doubt it. Schools are simply not designed to help children learn how to ask questions (the source of all knowledge) or, in fact, competently perform any intellectual operations (observing, inference-making, generalizing, verifying, etc.) that go beyond ventriloquizing (giving someone else's answers to someone else's questions). There are several reasons for this, not the least of which is that schools try very hard to train children to be obedient functionaries in a hierarchical economic system. A great deal has already been written on how children are grouped, graded, and otherwise "processed" in preparation for their tranquil entry into our economy. Public service television commercials which urge children to stay in school so that they might earn more money in the future give the whole game away. There is no other

reason that would make sense to a child - given what he already knows about school. Nonetheless, it is somewhat grotesque that most school environments are so blatantly modeled after the working conditions of mass production industries: 5 day week, 7 hour day, 1 hour lunch, careful division of labor for both teachers and students, a high premium on conformity and a corresponding suspicion of originality (or any deviant behavior), and the administration's concern for product rather than process. Here, one needs only to add that of all the assumptions on which present school procedures are based, there is none more questionable than that which says that the future requires children who are responsive to authority, who are unable to ask their own questions, and who do not know how to find their own answers.

Which leads to still one more set of assumptions keeping schools from a satisfactory meeting with the future. I have already alluded to the obsolete conception of knowledge which guides the schools. To this, must now be added the fact that for most school people "self-knowledge" is considered neither reputable nor worthwhile. There are pitifully few curricula anywhere in the country which include any serious attempt to have students learn something about themselves. Inquiries in student self-awareness when they occur at all, occur as extra-curricular enterprises. Attempts by students to inject their personal feelings into a lesson are uniformly considered intrusions. By "knowledge," our schools mean awareness of things outside one's skin. What is going on inside one's skin is not considered worthy of systematic or even haphazard study - to be referred to a guidance counselor or a friendly coach. Considering the fact that more Americans are hospitalized for mental illness than all other

illnesses combined, that suicide is the second most common cause of death among adolescents, and that the most common cause of infant mortality in our country is parental beating, the exclusion of self-knowledge from the epistemology of the schools is intolerable.

The 21st Century is only 31 years away and the schools are not as yet concerned to teach children how to think, how to master electronic media, how to deal with rapidly changing knowledge, how to produce knowledge, how to give direction to their own education, how to understand themselves.

I will not, therefore, discuss any procedures which use modern technology as a means of perpetuating the obsolete assumptions and structures of most school systems. Instead, I will describe a "school" program which will reflect my answers to the following questions: What should kids be doing in "school" today and in the years ahead? What should be the characteristics of such a "school"? What role can technology play in that environment?

The following quotation from Walden expresses compactly the major beliefs which generate the form of the program I will describe:

> Students should not play life, or study it merely, while the community supports them at this expensive game, but earnestly live it from beginning to end. How could youths better learn to live then by at once trying the experiment of living?

In other words, I am assuming (1) that learning takes place best not when conceived as a preparation for life but when it

occurs in the context of actually living, (2) that each learner ultimately must organize his own learning in his own way, (3) that "problems" rather than "subjects" are a more realistic structure by which to organize learning experiences, (4) that students are capable of directly and authentically participating in the intellectual and social life of their community, (5) that they should do so, (6) that the community badly needs them, and (7) that in order to do so effectively, students need to have skillful access to all forms of communications technology. (This set of beliefs is sometimes referred to as the "judo" principle of education. Instead of trying to forestall, resist, or neutralize the natural curiosity, intelligence, energy, and idealism of youth, one uses it in a context which permits both them and their community to change.) Thus, the program I am talking about abandons the metaphor of "subjects" altogether; it reduces the reliance on classrooms and school buildings; it transforms the relevant problems of the community into the students' "curriculum," and (as you will see) puts "media literacy" at the center of the learning experience.

Let us assume that the students attending our "school" live in a fairly large city. We can be sure, then, that their community has serious problems with traffic control, crime and law enforcement, strikes, race relations, urban blight, drug addiction, garbage disposal, air pollution, medical care, etc. The students would be formed into teams, each team consisting of a teacher, a high school senior, perhaps

a lay member of the community, and ten or a dozen students. Their task would be to select one of these problems for study, with a view toward designing authentic, practical solutions to it. They would do whatever they needed to do in order to learn about the problem (including previous attempts to solve it) and to communicate to others their own solutions. For example, imagine one team has selected the "crime" problem for study. Some students could spend two or three weeks at the police station serving in a capacity that would allow them to observe the problem from the perspective of the police. (Some might even go out on calls with police officers.) Others might report regularly to the criminal court, observing the problem from that vantage point. Students could spend many days on interviewing assignments: insurance men, police officers from other towns, ex-convicts, prison wardens, merchants, town officials, et al. Students could review the available literature (both non-fiction and fiction), correspond with prisoners, write to law enforcement officers in other countries. The classroom would be used, among other things, as a place of assembly when students needed to assess their findings, and to plan and organize additional inquiries. It is important to stress here that the activities described above do not constitute "field trips." Most of the students' "school life" would be spent outside the school where the realities of the problems being studies are to be found. However, included in the process must be a serious attempt to offer solutions and to communicate these to the appropriate people. This might require meeting in school for the purpose of writing resolutions, letters, pamphlets, handbills, etc. Or the students might wish to publish a newsletter about the problem, or produce an audio-

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tape for broadcasting on the local radio station (in which case some students might spend a week or two at the radio station), or prepare a photographic exhibit, or produce a film for presentation to the town council. The possibilities are almost inexhaustible. (More on this in a moment.)

Much of the teacher's work would involve making arrangements for the students' daily and weekly activities, e.g., arranging with the police, the court, the radio station, the newspaper, etc. for the most beneficial "internship" experience. The nature and locale of the students' activities would depend on the problem they are studying. A study of medical care problems would lead students to hospitals, doctors' offices, homes for the aged, welfare agencies, etc. A study of race relations might lead them to the Chamber of Commerce, the courts, the newspaper office, churches, etc.

In brief, the major idea is that the community itself will become a laboratory for the inquiries of students. The classroom, in this context, is only one of many resources that the students might choose to use. But the "community as laboratory" experience would by no means be the entire "school" program. If you will look again at the kinds of problems the students would try to solve, you will see that all of them are essentially problems in communication, or, as I prefer to call it, Media Ecology. The most succinct statement of what Media Ecology is can be found in The Human Use of Human Beings by Norbert Wiener. Although Wiener does not use the term anywhere in

his book (or anyplace else), his fundamental thesis is "that society can only be understood through a study of the messages and the communication facilities which belong to it.." In other words, Media Ecology is the study of the transaction among people, their messages, and their message systems. More particularly, Media Ecology studies how media of communication affect human perception, feeling, understanding, and value; and how our interaction with media facilitates or impedes our chances of developing liveable communities. The word ecology implies the study of environments: their structure, content, and impact on people. An environment is, after all, a complex message system which regulates ways of feeling and behaving. It structures what we can see and say and, therefore, do. Sometimes, as in the case of a church, courtroom, business office, or classroom, the specifications are more often implicit and informal, half-concealed by our assumption that what we are dealing with are machines and nothing more. Media Ecology tries to make these specifications explicit. It tries to find out what roles media force us to play, how media structure what we are seeing, why media make us feel and act as we do.

As Wiener would say, you cannot understand the "crime" problem, or the race problem, or the drug problem, etc. unless you have some understanding of the messages and the communication facilities of the society. And so, if there would be anything that could be characterized as a "subject" in the program I am describing it would be "Media Ecology." One way of studying Media Ecology is through the

activities I have already suggested; that is, the students go out into the community, identify problems, try to understand the causes of the problems, try to offer solutions, and, most important, attempt to communicate their solutions to others. In short, the community as laboratory. But another and complementary way is to use the school as laboratory - in this case, a media laboratory. I am thinking here of a school which is <u>designed</u> as a media laboratory. Such a school does not need many "rooms." It is equipped instead with a wide arary of 20th and 21st Century media. These would include, for example, computers, motion picture cameras and projectors, television equipment, tape recorders, stereophonic equipment, photo-offset equipment, radio transmission facilities, photographic equipment, etc.

Each student would be required to work toward the acquisition of "multi-media literacy." The intention is <u>not</u> to train technicians, but to have the student learn some of the important technical problems of several media, so that he may have some understanding of their creative capabilities and limitations. Indeed, if the medium is the message (or, if the medium is even <u>sometimes</u> the message), the students will need to know, in practical terms, something about the structure of various media. The best way to learn this is to <u>do</u>, to work with, to produce something in a medium. This is exactly what would happen when the students returned from their "community-lab" and entered their "media-lab." They would learn about media by using them in a real context in an attempt to communicate real solutions to real problems to real people. I have already referred to the news-

letters, the radio broadcasts, the films, the pamphlets, the photographic exhibits, etc., that would serve as links between the students and their community. Plays, TV documentaries, and public service commercials are other possibilities.

Included in "media literacy" must be a consideration of the problems of interpersonal communication: its structure, its effects, its limitations, its creative possibilities. In other words, in personal terms, one's language as well as one's body and entire meta-message mechanism are media of utmost importance. The psychology of interpersonal communication can be studied by requiring each student to be involved in one or more T-Group experiences. The purpose of such an experience is two-fold: first, to offer the student an opportunity to learn about, modify, and extend his own reportoire of communication techniques (verbal and non-verbal), and second, to provide students with a laboratory for the study of interpersonal communication. I need not elaborate on how crucial such matters are if students are going to identify, offer solutions to, and otherwise relate to the problems of the people in their own community.

What I have described so far is entirely feasible for children between the ages of 8 and 16. (There wouldn't be much point in putting children in "grades", and there would be much point in "mixing" children; that is, having each team consist of children of varying ages.) What I wish to describe now may be viewed, to use a horrible phrase, as "culminating experiences" for the students. (The only thing to be said in favor of that phrase is that it is preferable to "terminal experiences.") In any case, I am talking

about children between the ages of 16 and 18, who have had considerable experience in studying the problems, messages, and message facilities of their community. These young people would be involved (for at least two years) in what may be called media criticism. This means that they will produce, write, direct, edit, broadcast, telecast, etc. regular commentary about media of communication. The students will, in effect, monitor the media environment, addressing themselves to their community and possibly their own region of the country.

The students would produce a bi-weekly television program (taped in their own media-lab and aired on their local television station), a weekly radio program (taped in their own lab and aired on a local radio station), a weekly newsletter, possibly even a monthly magazine. Their object is to initiate and sustain a serious, informed dialogue with their community on the interaction between human beings and their communications technology. The departure point is media as environments (Media Ecology); that is, the effects of the structure and content of media on human perception, value, and understanding. Of paramount concern is the language environment itself - the uses and misuses of language, especially via the mass media. Here are some specific possibilities:

(1) Review of the Press, for which the students might take as their models the work of A.J. Liebling or Nat Hentoff. They would address themselves to such immediate and long-range questions as, How have newspapers dealt with important stories of the week? How do newspapers decide what is an "important" story? What are the biases

of different newspapers? What are their strengths? Who are the most reliable reporters? etc. An adjunct activity would be correspondence with individual news reporters and editorialists. Each student will correspond regularly with one news reporter, including radio and TV men, on the quality of his work during a specified period of time. (Before he died Albert Camus proposed that such a monitoring of the press be done. He would have been delighted to know that young students will assume this task.)

(2) Criticism of print and electronic advertising, in which the agencies producing various advertisements will be regularly examined and evaluated, along with the aesthetic and social value of their work. (Good example: Currently, Phillips 66 is running a commercial which claims that some chemical which is put in their gasoline actually contributes toward reducing air pollution. This is not only untrue, but dangerously untrue. The students could form a special Science and Technology Committee whose function would be to check on suspicious claims made via the media by various advertisers.)

(3) Criticism of radio and television programs, in which among other things, "ordinary" people (including students of all ages) are given the opportunity to express their opinions about network programming. One special feature might be the Weekly Murder Index, wherein an account is kept of the number and type of murders (and other brutalities) depicted weekly on network TV. Of a more positive nature, the criticism might attempt to make explicit the standards that might fairly be used to evaluate television and radio programs.

(For this activity, it is almost certain that young people will be more perceptive than adults. Print-oriented adults - for example, most teachers - are largely inept in their attempts to evaluate electronically produced literature.)

(4) Recording the Language Pollution Index, wherein students keep track of the important public utterances of the week, with a view toward calling attention to the best and especially the worst of (i.e., deceptive, illogical, oversimplified, vague, etc.) the use of language by public figures. With the increased outpouring of language through the mass media, it is essential that some check be made on the quality and direction of our semantic environment.

(5) Description and analysis of the economic facts of the communications industry, by which the public is kept informed of the financial structure of various media of communication: Who owns the TV and radio stations in town? the newspaper? the movie theatres? What financial stakes do these men have in the development of the community? For example, in cable television, pay television, ETV? What is the role of unions in these media? etc.

Other subjects to be dealt with are:

Informing the public about relevant government hearings and legislation dealing with media and technology,

Informing the public of the substance of major professional conferences and meetings dealing with media and technology, and most important,

Informing the public about new technology and the effects they are likely to have on the structure of society. Here is an

invaluable contribution since there is at present virtually no public dialogue on the proliferation of new technology nor of its possibilities for good or evil. Below are several questions (some requiring historical knowledge, others requiring highly speculative imaginations) that might be dealt with by the students:

What specific effects are television, film LP record, transistor radio, etc. having on youth? To what extent are such media-environments responsible for the "generation gap"? for student rebellion? for the search for "self" through drugs? What kinds of revolutions, if any, does electric circuitry provoke? Are books obsolete? If so, when will we find out? If not, what useful purposes will they serve? Why, indeed, can't Johnny read? Will he ever? Why should he? What are the long-range effects of the information explosion? Is it destroying hierarchies? organized religion? the industrial state? Who is programming the computers? What should computers be used for? What are they likely to use us for? Who should be forbidden to use them? What uses shall we make of bugging devices? of the television-telephone? What is technology doing to the concept of "privacy"? Will the electric car save our cities? At what cost? Are cities obsolete? Have big media "repealed" the Bill of Rights? Have they made politics an offshoot of show business? If so, what should we do about it? What new kinds of politics will we require? (To answer this last question, the students might convene a Constitutional Convention to which they would invite all interested parties from the community. Who knows? There might develop from this some highly practical guidelines for legislators

to use in future attempts to modify our present Constitution.) What will our new literary forms be like? Of what use will "tradition" be? To what extent is technology remaking our language? etc., etc.

The purposes of the students' activities here are these:

(1) The students will learn how to conduct responsible media criticism and will become, hopefully the nucleus of a cadre of media critics absolutely needed if our society is to deal rationally with present and future problems.

(2) Our students will develop models of and standards for media criticism where presently very few exist.

(3) The "school" would serve the community by becoming a major resource and focus for discussions of the impact of communications technology on society.

One more feature of our school program needs to be mentioned. Arrangements will have to be made for each of the students to serve as an "intern" (probably for a period of several weeks) to at least two different practictioners of the communication arts. The student will function as an "assistant" or in whatever capacity will offer the best opportunity for him to observe the inner workings of a medium of communication. The purpose here is to give the student a direct sense of what the media look like from the inside. Our students will "intern" with film directors, book publishers, newspaper and magazine editors, television, radio, and record producers, advertising executives, et al.

To conclude this memorandum, I want to acknowledge that, from one point of view, my proposals are irrelevant. If one is primarily interested in maintaining the present structure, function, and epistemology of the schools, then I have not answered the question put to me by the Commission. I am, of course, not interested in preserving any of it, and in fact believe that it is exceedingly dangerous to do so. Given that bias, I perceive the question put by the Commission in an entirely different context, and I sincerely hope the Commission will find my answers useful.